BOSCH
Invented for life

NBN-921 DinionHD 720p Day/Night IP Camera

- **1/3-inch Day/Night HD CCD with progressive scan**
- **15-bit Image Processing Technology**
- **Local Storage for Flexible recording options**
- **XF-dynamic engine and SmartBLC**
- **Intelligence at the edge**
- **ONVIF conformant**
- **Quad Streaming**

DinionHD Day/Night IP cameras are progressive scan HD cameras that use the Bosch-designed Dinion digital imaging technology.

The camera uses the latest CCD-based HD sensor for a sharper, more detailed picture with a 16:9 image format. Features such as multicasting, internet streaming and iSCSI recording are fully supported.

The DinionHD camera delivers the highest standards of performance and reliability in any security and surveillance scenario, day and night.

Functions

720p HD Camera

The DinionHD is designed using the latest HD CCD sensor which can deliver high resolution 720p streaming video in HD format (16:9). The camera now brings the unmatched Dinion Image performance to HD-standard video.

Outstanding image quality

With a 1/3-inch HD CCD sensor, the DinionHD Day/Night IP camera delivers outstanding image quality. The Bosch-designed digital video processing system optimally handles the HD image format without compromise. Image performance and color reproduction are superb even under challenging lighting conditions.

XF Dynamic and SmartBLC

The XF-Dynamic technology uses pixel-by-pixel analysis to provide the user with the most detailed information. Turn on SmartBLC to automatically compensate the image without the need for complicated set-up or without compromising dynamic range. Features such as Autoblack and Sharpness further improve the details in a scene.

Programmable Modes

Six independent, pre-programmed configuration modes, which have been optimized for typical applications, makes camera programming on-site easy and user-friendly. The installer just needs to select a mode from the menu that best defines the environment in which the camera is being installed. However, the operator still has the ability to customize these modes, if necessary, for the specific requirements of the site.

Day/Night switching

In night mode, the camera enhances low-light viewing by switching the IR (infrared) filter out of the optical path and providing a monochrome image. The camera can switch from color to monochrome mode automatically by sensing the illumination level, via the alarm input, or remotely via a web browser. In scenes with predominantly IR light, use the alarm input for reliable Day/Night filter switching.

Privacy masking
Four different privacy zones allow specific parts of a scene to be blocked. A mask for any part of the scene can be pre-programmed.

Default Shutter
The default shutter allows the camera to use a higher shutter speed when sufficient light is available (for applications such as traffic management). When light levels fall and other adjustments have been exhausted, the shutter speed reverts to a standard setting to maintain sensitivity.

SensUp Dynamic
By increasing the integration time up to 10 times on the CCD, the effective sensitivity is dramatically enhanced. This is especially useful when relying only on moonlight for illumination.

Efficient bandwidth and storage management
The cameras use H.264 (Main Profile) compression, bandwidth throttling, and multicasting capabilities to manage bandwidth and storage requirements efficiently, while delivering high image quality and resolution.

Bosch's innovative Quad-streaming feature enables the DinionHD to deliver three H.264 streams (a 720p HD stream, a downscaled resolution stream, and a HD I-frame only stream) together with an M-JPEG stream. These four streams facilitate bandwidth-efficient viewing and recording options as well as integration with third-party video management systems.

DinionHD cameras offer unparalleled recording options. Attached to the network, they can use iSCSI targets directly without needing any recording software. The recording management capabilities of the system can be further enhanced by using the Bosch Video Recording Manager (VRM).

DinionHD supports local storage on a microSD card. This can be used for local alarm recording or for Automatic Network Replenishment (ANR) to improve the overall reliability of video recording.

Standard intelligence
With built-in video content analysis, the camera reinforces the Intelligence-at-the-Edge concept where edge devices become increasingly intelligent. The MOTION+ video motion analysis system, which is built into all camera versions, is the perfect solution for applications where basic video content analysis features are required. This motion analysis algorithm is based on pixel change and includes object size filtering capabilities and sophisticated tamper-detection capabilities.

Hardware enhanced version
The hardware-enhanced version of the camera gives you the opportunity to upgrade the video content analysis features of the camera with the more advanced Intelligent Video Analysis (IVA) option. This option contains such features as idle object, line crossing, flow detection, crowd detection etc. The camera can be ordered with IVA pre-installed from the factory or IVA can be activated on hardware enhanced versions by installing a license on-site.

ONVIF conformance
The camera conforms to the ONVIF (Open Network Video Interface Forum) specification which guarantees interoperability between network video products regardless of manufacturer. ONVIF conformant devices are able to exchange live video, audio, metadata and control information. They are automatically discovered and connected to network applications such as video management systems.

Unsurpassed flexibility
There are many ways to access the camera’s video: on a PC using a web browser, with the Bosch Video Management System (VMS), or with the Bosch Video Client. The Bosch Video Client is provided free of charge with each camera. This easy-to-use software can easily configure and operate up to 16 cameras. A license upgrade adds support for up to 64 cameras.

Cost effective, simple installation
Three power options, PoE (Power-over-Ethernet), 24 VAC and 12 VDC are available. Using PoE makes installation easier and more cost-effective, as cameras do not require a local power source. To increase system reliability, the camera can be simultaneously connected to both PoE and 12 VDC/24 VAC supplies. Additionally, uninterruptible power supplies (UPS) can be used, which will allow continuous operation, even during a power failure. For trouble-free network cabling, the cameras support Auto-MDIX which allows the installer to use straight or cross-over cables.

Intuitive user interface
The DinionHD camera has a very intuitive user interface that allows fast and easy configuration over IP. The new intuitive lens wizard in the web GUI guides the installer through a step-by-step procedure to setup the back focus correctly

Easy Upgrade
Remotely upgrade the camera whenever new firmware becomes available. This ensures up-to-date products, thus protecting investment with little effort.

Access Security

Various security levels are available for accessing the network, the camera and the data channels. As well as password protection with three levels, 802.1x authentication using a RADIUS (Remote Authentication Dial In User Service) server is supported. To secure Web browser access, use HTTPS with a SSL certificate stored in the camera. For total data protection, the video and audio communication channels can be independently AES encrypted with 128-bit keys by installing the optional encryption site license.

Typical applications

- Prisons and correctional facilities
- Retail outlets
- Commercial and government buildings
- Schools
- Hospitals
- Banks
- City surveillance
- Places with high crowd density or mass gatherings

Certifications and Approvals

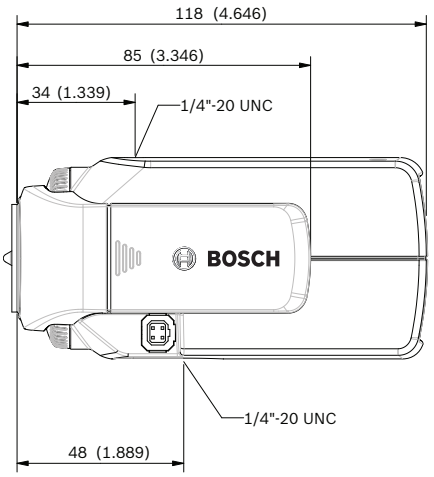
Region	Certification
Europe	CE
USA	UL
	FCC
Canada	CSA

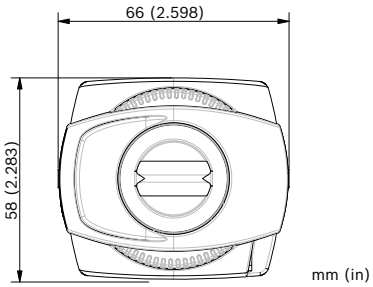
Electro Magnetic Compatibility

Emission	EN55022 Class B EN61000-3-2 EN61000-3-3 FCC Part 15 Class B
Immunity	EN50130-4 (PoE, +12 VDC) EN55024 (24 VAC) EN50121-4
Safety	EN60950-1 UL60950-1 (2nd edition) CAN/CSA-C 22.2 No. 60950-1
Vibration	Camera with 500 g (1.1 lb) lens as per IEC60068-2-6 (5 m/s^2, operational)

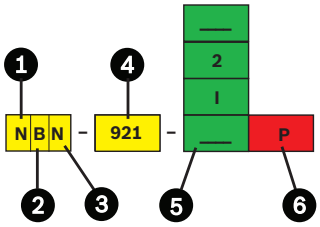
Installation/Configuration Notes

Dimensions





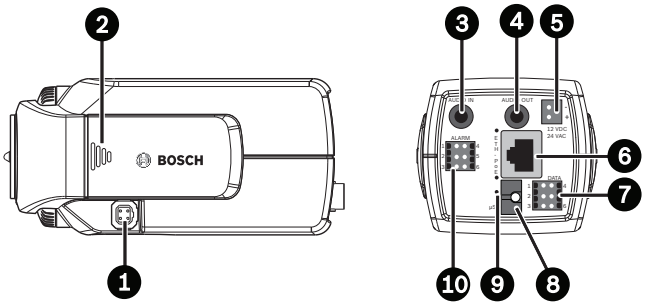
Ordering chart



1	N: Network camera	4	921: DinionHD performance
2	B: Fixed body	5	Motion+ 2: IVA ready * I: IVA enabled
3	N: Day/Night	6	P: PoE

** No license included*

Controls



1	Lens connector	6	10/100 Base-T Fast Ethernet
2	Back focus lock	7	Data (RS485/422/232)
3	Audio in	8	MicroSD card slot
4	Audio out	9	Reset button
5	Power supply input	10	Alarm in, relay out

Parts Included

Quantity	Components
1	NBN-921 Series DinionHD Day/Night IP Camera
1	Spare lens connector
1	Safety Instructions
1	Quick Install Guide
1	Mini DVD-ROM with manuals, software and tools
1	Power connector
1	Alarm I/O connector
1	Data connector
1	C/CS mount adapter

Technical Specifications

Electrical

Power Supply	24 VAC ±10% 50/60 Hz 12 VDC ±10% Power-over-Ethernet
Current Consumption	550 mA | 650 mA IVA (12 VDC) 550 mA | 650 mA IVA (24 VAC) 200 mA | 250 mA IVA (PoE 48 VDC)
Power Consumption	6.6 W | 7.8 W IVA (12 VDC) 8.2 W | 9.7 W IVA (24 VAC) 9.6 W (PoE 48 VDC)

Sensor

Type	1/3-inch CCD
Active Pixels	1280 x 960

Network Video

Video compression	H.264 (ISO/IEC 14496-10); M-JPEG, JPEG
Streaming	Four individually configurable streams in H. 264 and M-JPEG, configurable frame rate and bandwidth.
Two independently configurable H.264 streams	**Stream 1**: H.264 Main Profile (MP) 720p 25/30 **Stream 2**: H.264 Baseline Profile plus (BP+) or H.264 MP Standard Definition (SD), or Copy of stream 1
Two additional streams	M-JPEG stream and High Definition (HD) I-frame only stream.
Data rate	9.6 Kbps to 10 Mbps
Resolution	Horizontal x Vertical
• 720p	1280 x 720
• 4CIF	704 x 480 (25/30 ips)
• CIF	352 x 240 (25/30 ips)
Overall IP Delay	Min. 120 ms, Max. 240 ms
GOP structure	IP, IBP, IBBP

Sensitivity (3200 K, scene reflectivity 89%, F1.4)

	Minimum illumination (30 IRE)
Color	1 lx (0.1 fc)
Color + SensUp 10x	0.1 lx
Monochrome	0.4 lx (0.04 fc)
Monochrome + SensUp 10x	0.04 lx
IR Sensitivity	Upto 1050 nm
Day/Night	Color, Mono, Auto
Modes	6 preset programmable modes
SmartBLC	On / Off
Dynamic Range	70 dB
AGC	AGC On or Off (0 - 35 dB) selectable
White Balance	ATW (2500 to 10000K), ATWhold and manual
Shutter	Auto (1/50 [1/60] to 1/10000) selectable Auto (1/50 [1/60] to 1/50000) automatic fixed selectable
Sensitivity up	Adjustable from Off up to 10x
Auto Black	Automatic continuous, Off
Dynamic Noise Reduction	Auto, On/off selectable
Sharpness	Sharpness enhancement level selectable

Privacy Masking	Four independent areas, fully programmable
Video Motion Analysis	Motion+ or IVA
Test Pattern Generator	Color bars 100%, Grayscale 11-step, Sawtooth 2H, Checker board, Cross hatch, UV plane
Synchronization	Internal, Line Lock selectable

Lens

Lens Mount	CS (max lens protrusion 5 mm, 0.2 inch), C-mount compatible with supplied adapter ring
Lens Types	Manual, DC-Iris auto-detect DC-iris drive: max. 50 mA continuous
Lens Controls	Wizard from web page

Audio

Standard	G.711, 8kHz sampling rate L16, 16kHz sampling rate
Signal-to-noise ratio	> 50 dB
Audio Streaming	Full duplex

Input/output

Audio	1 x mono line in, 1 x mono line out
• connector	3.5 mm mono jack
• signal line in	9 kohm typical, 5.5 Vpp max
• signal line out	3.0 Vpp at 10 kOhm typical, 2.3 Vpp at 32 Ohm typical, 1.7 Vpp at 16 Ohm typical
Alarm	2 inputs
• connector	Clamp (non-isolated closing contact)
• activation voltage	+5 VDC to +40 VDC (+3.3 VDC with DC-coupled 22 kOhm pull-up resistor)
Relay	1 output
• connector	Clamp
• voltage	30 VAC or +40 VDC Maximum 0.5 A continuous, 10VA
Data port	RS-232/422/485

Software Control

Unit Configuration	Via web browser or Configuration Manager
Software update	Flash ROM, remote programmable via web browser or Configuration Manager

Network

Protocols	RTP, RTSP, Telnet, UDP, TCP, IP, HTTP, HTTPS, FTP, DHCP, IGMP V2/V3, ICMP, ARP, SMTP, SNTP, SNMP, 802.1x, UPnP
Encryption	TLS 1.0, SSL, AES (optional)
Ethernet	STP, 10/100 Base-T, auto-sensing, half/full duplex, RJ45
PoE supply	IEEE 802.3af compliant

Mechanical

Dimensions (H x W x L)	58 x 66 x122 mm (2.28 x 2.6 x 4.8 inch) without lens
Weight	542 g (1.195 lb) without lens
Color	RAL 9007 Metallic Titanium
Tripod Mount	Bottom (electrically isolated) and top 1/4-inch 20 UNC

Environmental

Operating Temperature*	-20°C to +50°C (-4°F to 122°F)
Operating Temperature (IVA)*	-20°C to +40°C (-4°F to 113°F)
Storage Temperature	-40°C to +70°C (-40°F to +158°F)
Operating Humidity	20% to 93% RH
Storage Humidity	up to 98% RH
Environmental Test Method	EN50130-5:1999 Alarm systems Part 5 (Class II Indoor in general)

** for extended temperature range use HAC-IPCCC*

Ordering Information

NBN-921-P DinionHD D/N IP Camera 1/3-inch 720p HD, H.264 dual stream, SmartBLC, Motion+, PoE	**NBN-921-P**
NBN-921-2P DinionHD D/N IP Camera 1/3-inch 720p HD, H.264 dual stream, SmartBLC, IVA ready, PoE	**NBN-921-2P**
NBN-921-IP DinionHD D/N IP Camera 1/3-inch 720p HD, H.264 dual stream, SmartBLC, IVA enabled, PoE	**NBN-921-IP**
Accessories	
VLG-3V3813-MP3 Varifocal Mega Pixel Lens 3 Mega Pixel, 3.8-13 mm varifocal, f1.4, 1/2-inch lens, DC iris	**VLG-3V3813-MP3**
EX12LED-3BD-8M Infrared Illuminator EX12LED IR Illuminator, 850 nm, 30 deg beam	**EX12LED-3BD-8M**
EX12LED-3BD-8W Infrared Illuminator EX12LED, IR Illuminator, 850 nm, 60 deg beam	**EX12LED-3BD-8W**
EX12LED-3BD-9M Infrared Illuminator EX12LED IR Illuminator, 940 nm, 30 deg beam	**EX12LED-3BD-9M**
EX12LED-3BD-9W Infrared Illuminator EX12LED, IR Illuminator, 940 nm, 60 deg beam	**EX12LED-3BD-9W**
UPA-2410-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 10 VA Out	**UPA-2410-60**
UPA-2430-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 30 VA Out	**UPA-2430-60**
UPA-2450-60 Power Supply 120 VAC, 60 Hz, 24 VAC, 50 VA Out	**UPA-2450-60**

Ordering Information

UPA-2420-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 20 VA Out	**UPA-2420-50**
UPA-2450-50 Power Supply 220 VAC, 50 Hz, 24 VAC, 50 VA Out	**UPA-2450-50**
S1374 Adapter converts C mount lens to CS mount camera	**S1374**
HAC-IPCCC Camera Cooling Case For use with Dinion IP cameras in combination with HSG and UHO Series housings equipped with an optional blower	**HAC-IPCCC**
Software Options	
MVC-FIVA4-CAM IVA 4.0 VCA software license for IP camera/ dome (e-license)	**MVC-FIVA4-CAM**
MVC-FENC-AES BVIP AES 128 Bit Encryption BVIP AES 128-bit encryption site license. This license is required only once per installation. It enables encrypted communication between BVIP devices and management stations.	**MVC-FENC-AES**

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